

## CLAIMS

1. A vapor phase growth method for growing an epitaxial layer on a semiconductor substrate, comprising:

previously measuring a resistivity of the semiconductor substrate at a room temperature; controlling a set temperature of the substrate depending on the resistivity at the room temperature such that a surface temperature of the substrate is a desired temperature regardless of the resistivity of the semiconductor substrate; and growing the epitaxial layer.

2. The vapor phase growth method as claimed in claim 1, wherein the semiconductor substrate is a compound semiconductor.

3. The vapor phase growth method as claimed in claim 2, wherein the semiconductor substrate is an InP substrate.

4. The vapor phase growth method as claimed in claim 3, wherein the semiconductor substrate is an Fe-doped InP substrate.

5. The vapor phase growth method as claimed in any of claims 1 to 4, wherein a molecular beam epitaxy is used to grow an epitaxial layer.